



<110> VALENTA, Rudolf et al.

<120> NON-ANAPHYLACTIC FORMS OF GRASS POLLEN PH1 P 6 ALLERGEN AND THEIR USE

<130> 1614-0244p

<140> 09/696,169

<141> 2000-10-26

<160> 21

<170> PatentIn version 3.0

<210> 1

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer derived from Phleum pratense

<400> 1
gggaattcca tatggggaag gccacgacc 29

<210> 2

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer derived from Phleum pratense

<400> 2
cggggtaccc tagtggtggt ggtggtggtg gggcgcccttt gaaac 45

<210> 3

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer derived from Phleum pratense

<400> 3
gggaattcca tatggcagac aagtataag 29

<210> 4

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

10240

<223> Primer derived from Phleum pratense

<400> 4

ccggaattcc tagtggtggt ggtggtggtg cgcgccgggc ttgac

45

<210> 5

<211> 4

<212> PRT

<213> Phleum pratense

<400> 5

Gly Lys Ala Thr

1

<210> 6

<211> 4

<212> PRT

<213> Phleum pratense

<400> 6

Lys Ala Thr Thr

1

<210> 7

<211> 4

<212> PRT

<213> Phleum pratense

<400> 7

Lys Tyr Lys Thr

1

<210> 8

<211> 138

<212> PRT

<213> Phleum pratense

<400> 8

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala
35 40 45

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
50 55 60

Phe Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
65 70 75 80

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
85 90 95

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
100 105 110

Ala Phe Val Leu His Phe Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr
115 120 125

Pro Glu Val His Ala Val Lys Pro Gly Ala
130 135

<210> 9
<211> 750
<212> DNA
<213> Phleum pratense

<400> 9
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atgttctctg ctgttgccgt tgtgttgggc ttggccacat ccccaactgc agagggaggg 120
aaggccacga ccgaggagca aaaattgatc gaggacatca atgccagett tagggcggcc 180
atggccacca ctgctaacgt cctccagca gacaagtata agacattcga agccgccttc 240
acggtgtcct caaagagaaa cctcgctgac gccgtttcaa aggcgcccc gctggtcccc 300
aagctcgatg aagtctacaa cgccgcctac aatgctgccg atcatgccgc ccagaagac 360
aagtatgaag ccttcgtcct tcaactttcc gaggtctctc acatcatcgc cgttaccccc 420
gaggtccacg ctgtcaagcc cggcgctag ttgttcagca cggtaagat ccttgacagc 480
gtcgtgcca ccggcgctgc agccaacact gccagtggct aaaaaattcg actagtcct 540
tcatacaatg aatacacatg tatcattcaa acatactact gtacagtatg tgcattgacct 600
agcggcgagc atttttttta tgattaatct ttatacatg ggcgtgatcg agcgtgtgca 660
tatgtgtaat aattaatttt ttattttgat ttgaaattgt aatcctgata agaaatgcga 720
ttaagtccat ttatgaaaaa aaaaaaaaaa 750

<210> _10
<211> 571

<212> DNA
<213> Phleum pratense

<400> 10
ccaacgcacg agtagcaatg gcagcgcaca agttcatggt ggcgatgttc ctcgctgttg 60
ccgttggtgtt gggcttggcc acatcccca ctgcagaggg aggggaaggcc acgaccgagg 120
agcaaaaatt gattgaggac gtcaatgcc a gctttagggc ggccatggcc accactgcta 180
acgtccctcc agcagacaag tataagacat tcgaagcgc cttcacggtg tcctcaaaga 240
gaaacctcgc tgacgccgtt tcaaaggcgc ccagctggt cccaagctc gatgaagtct 300
acaacgccgc ctacaatgct gccgatcatg ccgccccaga agacaagtat gaagccttcg 360
tccttcactt ttccgaggct ctccgtatca tcgcgggtac ccccgagggt cacgctgtca 420
agccccgcgc gtagttgttc agcacggtca agatccttga cagcgtcgtc gccaccggcg 480
ctgcagccaa cactgccagt ggctaaaaaa ttcgactagc tccttcatac aatgaatata 540
catgtatcat tcaaaaaaaaa aaaaaaaaaa a 571

<210> 11
<211> 647
<212> DNA
<213> Phleum pratense

<400> 11
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actgctaacg tccctccagc agacaagtat aagacattag aagccgcctt cacggtgtcc 120
tcaaagagaa acctcgtga cgccgtctca aaggcgcccc agctcgtccc caagctcgat 180
gaagtctaca acgccgccta caatgctgcc gatcatgccg cccagaaga caagtatgaa 240
gccttcgtcc ttcacttttc cgaggctctc cgtatcatcg ccggtacccc cgagggtccac 300
gctgtcaagc ccggcgcgta gttgttcagc acggtcaaga tccttgacag cgtcgtgtcc 360
accggtgctg cagccaacac tgccagtggc taaaaagttc gaccagctct ttcatacaat 420
gaatacacat gtatctttca aacatactac tgtacagtat gtgcatgacc tagcggcgag 480
catttttttt atgattaatc ttttatacat gggcgtgatc gagcgtgtgc atatgtgtaa 540
taattaatth cttatthttga tttgaaattg taatcctgat aagaaatgcg attaagtcca 600
tttatgaaat atagatggtc cgtcgtttatt taaaaaaaa aaaaaaa 647

<210> 12
<211> 572
<212> DNA

<213> Phleum pratense

<400> 12

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gcagacaagt ataagacatt cgaagccgcc ttcacggtgt cctcaaagag aaacctcgct      60
gacgccgttt caaaggcgcc ccagctgggtc cccaagctcg atgaagtcta caacgccgcc      120
tacaatgctg ccgatcatgc cgccccagaa gacaagtatg aagccttcgt ccttcacttt      180
tccgaggctc tccacatcat cgccggtacc cccgagggtcc acgctgtcaa gcccggcgcg      240
tagttgttca gcacggtcaa gatccttgac agcgtcgctg ccaccggcgc tgcagccaac      300
actgccagtg gctaaaaaat tcgactagct ccttcataca atgaatacac atgtatcatt      360
caaacatact actgtacagt atgtgcatga cctagcggcg agcatttttt ttatgattaa      420
tcttttatac atgggcgtga tcgagcgtgt gcatatgtgt aataattaat tttttatttt      480
gatttgaaat tgtaatcctg ataagaaatg cgattaagtc catttaaaaa aaaaaaaaaa      540
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa                                     572
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<210> 13

<211> 474

<212> DNA

<213> Phleum pratense

<400> 13

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tcaaaggcgc cccagctggt cccaagctc gatgaagtct acaacgccgc ctacaatgct      60
gccgatcatg ccgccccaga agacaagtat gaagccttcg tccttcactt ttccgaggct      120
ctccacatca tcgccggtac ccccgagggtc cacgctgtca agcccggcgc gtagttgttc      180
agcacggtca agatccttga cagcgtcgct gccaccggcg ctgcagccaa cactgccagt      240
ggctaaaaaa ttcgactagc tccttcatac aatgaataca catgtatcat tcaaacatac      300
tactgtacag tatgtgcatg acctagcggc gagcattttt tttatgatta atcttttata      360
catgggcgtg atcgagcgtg tgcataatgt taataattaa ttttttattt tgatttgaaa      420
ttgtaatcct gataagaaat gcgattaagt ccatttatga aaaaaaaaaa aaaa          474
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<210> 14

<211> 554

<212> DNA

<213> Phleum pratense

<400> 14

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cagctggtcc ccaagctcga tgaagtctac aacgccgcct acaatgctgc cgatcatgcc      60
gccccagaag acaagtatga agccttcgtc cttcactttt ccgaggctct ccacatcatc      120
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gccggtaccc ccgaggtcca cgctgtcaag cccggcgcggt agttgttcag cacgggtcaag 180
 atccttgaca gcgtcgctgc caccggcgct gcagccaaca ctgccagtgg ctaaaaaatt 240
 cgactagctc cttcatacaa tgaatacaca tgtatcattc aaacatacta ctgtacagta 300
 tgtgcatgac ctagcggcga gcattttttt tatgattaat cttttataca tgggcgtgat 360
 cgagcgtgtg catatgtgta ataattaatt ttttattttg atttgaaatt gtaatcctga 420
 taagaaatgc gattaagtcc atttatgaaa tatagatggc ctgtcgttat ttaaaaaaaaa 480
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 540
 aaaaaaaaaa aaaa 554

<210> 15
 <211> 138
 <212> PRT
 <213> Phleum pratense

<400> 15

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn Ala Ser Phe Arg Ala
35 40 45

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
50 55 60

Phe Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
65 70 75 80

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
85 90 95

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
100 105 110

Ala Phe Val Leu His Phe Ser Glu Ala Leu His Ile Ile Ala Gly Thr
115 120 125

Pro Glu Val His Ala Val Lys Pro Gly Ala
130 135

<210> 16
<211> 138
<212> PRT
<213> Phleum pratense

<400> 16

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala
35 40 45

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
50 55 60

Phe Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
65 70 75 80

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
85 90 95

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
100 105 110

Ala Phe Val Leu His Phe Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr
115 120 125

Pro Glu Val His Ala Val Lys Pro Gly Ala
130 135

<210> 17
<211> 106
<212> PRT
<213> Phleum pratense

<400> 17

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala
1 5 10 15

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
20 25 30

Leu Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
35 40 45

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
50 55 60

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
65 70 75 80

Ala Phe Val Leu His Phe Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr
85 90 95

Pro Glu Val His Ala Val Lys Pro Gly Ala
100 105

<210> 18
<211> 80
<212> PRT
<213> Phleum pratense

<400> 18

Ala Asp Lys Tyr Lys Thr Phe Glu Ala Ala Phe Thr Val Ser Ser Lys
1 5 10 15

Arg Asn Leu Ala Asp Ala Val Ser Lys Ala Pro Gln Leu Val Pro Lys
20 25 30

Leu Asp Glu Val Tyr Asn Ala Ala Tyr Asn Ala Ala Asp His Ala Ala
35 40 45

Pro Glu Asp Lys Tyr Glu Ala Phe Val Leu His Phe Ser Glu Ala Leu
50 55 60

His Ile Ile Ala Gly Thr Pro Glu Val His Ala Val Lys Pro Gly Ala
65 70 75 80

<210> 19
<211> 57
<212> PRT
<213> Phleum pratense

<400> 19

Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn Ala
1 5 10 15

Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu Ala
20 25 30

Phe Val Leu His Phe Ser Glu Ala Leu His Ile Ile Ala Gly Thr Pro
35 40 45

Glu Val His Ala Val Lys Pro Gly Ala
50 55

<210> 20

<211> 53

<212> PRT

<213> Phleum pratense

<400> 20

Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn Ala Ala Tyr Asn Ala
1 5 10 15

Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu Ala Phe Val Leu His
20 25 30

Phe Ser Glu Ala Leu His Ile Ile Ala Gly Thr Pro Glu Val His Ala
35 40 45

Val Lys Pro Gly Ala
50

<210> 21

<211> 57

<212> PRT

<213> Phleum pratense

<400> 21

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala

35

40

45

Ala Met Ala Thr Thr Ala Asn Val Pro
50 55
